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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,529	03/30/2004	Tadahiko Kubota	09792909-5847	6143

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EXAMINER

ECHHELMMEYER, ALIX ELIZABETH

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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10/02/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/813,529

Applicant(s)

KUBOTA ET AL.

Examiner

Alix Elizabeth Echelmeyer

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 and 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 14, 2008 has been entered.
2. Claims 1 and 5 have been amended. Claim 4 has been cancelled; claims 2 and 9-18 were previously cancelled. Claims 1, 3 and 5-8 are pending and are rejected for the reasons given below.

Claim Rejections - 35 USC § 112

3. The rejection of claim 1 under 35 U.S.C. 112, second paragraph, is withdrawn in light of the amendment.

Claim Interpretation

4. Claim 1 contains a limitation concerning the cathode active material. The claim language is drawn to material being capable of inserting and extracting lithium. This property is inherent to the material. The court has held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

See also MPEP 2112 and 2112.01. When the Examiner has provided a sound basis for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product shown in the prior art does not possess the characteristics of the claimed product. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Applicant has failed to argue convincingly that the claimed properties are not inherent. The fact that the reference does not explicitly disclose the properties does not mean that the material does not have those properties, since the material is the same as that disclosed in the instant specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Sonoda et al. (US 2002/0028389).

Sonoda et al. teach a non-aqueous electrolyte for use in an electrochemical device such as a lithium battery (abstract, [0001]). As for claim 1, it is well known to those having ordinary skill in the art that a lithium battery contains a cathode, an anode and an electrolyte.

The electrolyte of Sonoda et al. contains a solute represented by formula (1): $\text{MBR}^1\text{R}^2\text{R}^3\text{R}^4$ (abstract, [0010]). R^1 , R^2 , R^3 and R^4 may be represented by $\text{C}_n\text{F}_{2n+1}$ or $\text{C}_m\text{F}_{2m+1}\text{SO}_2$ ([0011]). Additionally, since formula (1) is in solution in the electrolyte, it can be considered as its cation and anion: M^+ ($\text{BR}^1\text{R}^2\text{R}^3\text{R}^4$)⁻ ([0019]).

A specific example of the material represented by formula (1) includes $\text{LiB}(\text{CF}_3)_4$ ([0012]), which is identical to the material disclosed in the instant specification (see paragraph 5, above).

As for the limitation concerning the cathode active material, Sonoda et al. disclose that the positive active material is a transition metal complex oxide ([0051]).

Claim 1 specifically requires that the lithium ions deposit on the surface of the anode current collector as lithium metal during charging. Sonoda et al. teach a lithium secondary battery ([0027]). According to Applicant's disclosure, lithium metal does not precipitate in a lithium ion battery, differentiating that type of battery from lithium batteries (see page 2, which describes precipitation in a lithium battery, and page 10, which describes lithium ion batteries). Since Sonoda et al. teach a lithium secondary battery, they inherently teach precipitation of lithium metal on the anode.

As for claim 3, examples of the negative material include carbon materials, TiS_2 , and alkali metals such as silicon ([0044]).

Regarding claims 6-8, the electrolyte of Sonoda et al. may also include additional anions such as one or a mixture of PF_6^- , BF_4^- , ClO_4^- , AsF_6^- or $\text{N}(\text{CF}_3\text{SO}_2)_2^-$ ([0068]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda et al.

The teachings of Sonoda et al. as discussed above are incorporated herein.

Sonoda et al. teach the battery of claim 1 but fail to teach that the moisture content in the electrolyte is 100 ppm or less at a mass ratio in relation to the electrolyte.

Sonoda et al. teach that too much moisture in the electrolyte causes it to decompose ([0004]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the lowest tolerable amount of moisture in the electrolyte to prevent decomposition, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. MPEP 2144.05 (II B).

Response to Arguments

9. Applicant's arguments filed June 5, 2008, in the Request for Reconsideration, have been fully considered but are moot in view of the new grounds of rejection, see above, necessitated by the amendment.

On pages 6-7, Applicant argues that Sonoda et al. do not teach that lithium metal is deposited on the anode during charging, and then dissolved into lithium ions during discharge so that lithium ions travel from the anode to the cathode through the electrolyte during operation. The examiner contends that it is well known in the art that a lithium battery operates by moving lithium ions from the anode to the cathode to produce electrical energy. Sonoda et al. teach the use of the electrolyte disclosed for ionic conductivity between the electrodes (abstract).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shibamoto et al. (WO/2002/078113, with US 2004/0096733 relied upon for translation) teach a lithium secondary battery in which lithium metal deposits on the anode as a precipitate during charging, and then turns back into ions that travel to the cathode during discharge ([0100]-[0101]). This operation, with the precipitation and dissolution of lithium at the anode, leads to higher energy density and superior charge-discharge characteristics.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee

/SUSY N TSANG-FOSTER/
Supervisory Patent Examiner, Art Unit 1795